


contacting the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform polypeptide or nucleic acid and the human N-type calcium channel non- $\alpha_{1B+SFVG}$ subunit isoform polypeptide or nucleic acid with a compound,

determining the binding of the compound to the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform polypeptide or nucleic acid and the human N-type calcium channel non- $\alpha_{1B+SFVG}$ subunit isoform polypeptide or nucleic acid, wherein a compound which binds the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform polypeptide or nucleic acid in an amount greater than the human N-type calcium channel non- $\alpha_{1B+SFVG}$ subunit isoform polypeptide or nucleic acid is a compound which preferentially binds the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform.

Remarks

Please enter this amendment prior to calculation of the fees. The claims were amended to reduce claims fees. No new matter has been added.

Respectfully submitted,


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Amended Claims

5.(amended) An isolated human N-type calcium channel $\alpha_{1B+SFVG}$ subunit nucleic acid molecule which encodes [the polypeptide of any of claims 1-4] a human N-type calcium channel $\alpha_{1B+SFVG}$ subunit polypeptide which comprises SEQ ID NO:2 in an extracellular domain.

6.(amended) The isolated human N-type calcium channel $\alpha_{1B+SFVG}$ subunit nucleic acid molecule of claim 5, wherein the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit nucleic acid molecule comprises the nucleotide sequence of SEQ ID NO:1.

7.(amended) The isolated human N-type calcium channel $\alpha_{1B+SFVG}$ subunit nucleic acid molecule of claim 5, wherein the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit nucleic acid molecule comprises the nucleotide sequence of SEQ ID NO:3.

8.(amended) The isolated human N-type calcium channel $\alpha_{1B+SFVG}$ subunit nucleic acid molecule of claim 5, wherein the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit nucleic acid molecule consists of the nucleotide sequence of SEQ ID NO:3.

9.(amended) The isolated human N-type calcium channel $\alpha_{1B+SFVG}$ subunit nucleic acid molecule of claim 8, wherein the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit nucleic acid is a homolog or allele of the nucleic acid sequence of SEQ ID NO:3.

10.(amended) An isolated fragment of the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit nucleic acid molecule of claim 5.

11.(amended) An expression vector comprising the isolated human N-type calcium channel $\alpha_{1B+SFVG}$ subunit nucleic acid molecule of claim 5 operably linked to a promoter.

12.(amended) An expression vector comprising the isolated human N-type calcium channel
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$\alpha_{1B+SFVG}$ subunit nucleic acid molecule of claim 10 operably linked to a promoter.

14.(amended) An agent which selectively binds [the] a human N-type calcium channel $\alpha_{1B+SFVG}$ subunit polypeptide [of claim 1] which comprises SEQ ID NO:2 in an extracellular domain or [a] the nucleic acid [that encodes the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit polypeptide] of claim [1] 5.

18.(amended) The agent of claim 14, wherein the agent is an antisense nucleic acid which selectively binds to [a] the nucleic acid of claim 5 [encoding the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit polypeptide].

19.(amended) The agent of claim[s] 14[-18], wherein the agent is an inhibitor of the calcium channel activity of the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit polypeptide.

31.(amended) A method for identifying compounds which selectively bind a human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform comprising,

providing a first cell or membrane encapsulated space which expresses a human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform encoded by the nucleic acid molecule of claim 5,

providing a second cell or membrane encapsulated space which expresses a human N-type calcium channel non- $\alpha_{1B+SFVG}$ subunit isoform, wherein the second cell or membrane encapsulated space is identical to the first cell except for the α_{1B} isoform expressed,

contacting the first cell or membrane encapsulated space and the second cell or membrane encapsulated space with a compound,

determining the binding of the compound to the first cell or membrane encapsulated space and the second cell or membrane encapsulated space, wherein a compound which binds the first cell or membrane encapsulated space but does not bind the second cell or membrane encapsulated space is a compound which selectively binds the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform.

32.(amended) A method for identifying compounds which selectively bind a human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform comprising,

providing a human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform polypeptide encoded by the nucleic acid molecule of claim 5 or the nucleic acid molecule of claim 5,

providing a human N-type calcium channel non- $\alpha_{1B+SFVG}$ subunit isoform polypeptide or nucleic acid,

contacting the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform polypeptide or nucleic acid and the human N-type calcium channel non- $\alpha_{1B+SFVG}$ subunit isoform polypeptide or nucleic acid with a compound,

determining the binding of the compound to the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform polypeptide or nucleic acid and the human N-type calcium channel non- $\alpha_{1B+SFVG}$ subunit isoform polypeptide or nucleic acid, wherein a compound which binds the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform polypeptide or nucleic acid but does not bind the human N-type calcium channel non- $\alpha_{1B+SFVG}$ subunit isoform polypeptide or nucleic acid is a compound which selectively binds the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform.

33.(amended) A method for identifying compounds which preferentially bind a human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform comprising,

providing a first cell or membrane encapsulated space which expresses a human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform encoded by the nucleic acid molecule of claim 5,

providing a second cell or membrane encapsulated space which expresses a human N-type calcium channel non- $\alpha_{1B+SFVG}$ subunit isoform, wherein the second cell or membrane encapsulated space is identical to the first cell except for the α_{1B} isoform expressed,

contacting the first cell or membrane encapsulated space and the second cell or membrane encapsulated space with a compound,

determining the binding of the compound to the first cell or membrane encapsulated

space and the second cell or membrane encapsulated space, wherein a compound which binds the first cell or membrane encapsulated space in an amount greater than the compound binds the second cell or membrane encapsulated space is a compound which preferentially binds the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform.

34.(amended) A method for identifying compounds which preferentially bind a human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform comprising,

providing a human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform polypeptide encoded by the nucleic acid molecule of claim 5 or the nucleic acid molecule of claim 5,

providing a human N-type calcium channel non- $\alpha_{1B+SFVG}$ subunit isoform polypeptide or nucleic acid,

contacting the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform polypeptide or nucleic acid and the human N-type calcium channel non- $\alpha_{1B+SFVG}$ subunit isoform polypeptide or nucleic acid with a compound,

determining the binding of the compound to the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform polypeptide or nucleic acid and the human N-type calcium channel non- $\alpha_{1B+SFVG}$ subunit isoform polypeptide or nucleic acid, wherein a compound which binds the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform polypeptide or nucleic acid in an amount greater than the human N-type calcium channel non- $\alpha_{1B+SFVG}$ subunit isoform polypeptide or nucleic acid is a compound which preferentially binds the human N-type calcium channel $\alpha_{1B+SFVG}$ subunit isoform.